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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
1279 OAKMEAD PARKWAY
SUNNYVALE, CA 94085-4040

EXAMINER	
WOZNIAK, JAMES S	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,994	BELLEGARDA, JEROME R.	
	Examiner	Art Unit	
	James S. Wozniak	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-96* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15-20,55-60 and 75-80* is/are allowed.

6)☒ Claim(s) *1-14,21-54,61-74 and 81-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the office action from 6/25/2007, the applicant has submitted an amendment, filed 9/25/2007, amending the independent claims to include a concatenation vector and use of such a vector in a distance calculation with a feature vector, while arguing to traverse the art rejection based on the added limitation *(Amendment, Pages 35-36)*. The applicant's arguments have been fully considered but are moot with respect to the new grounds of rejection in view of Coorman et al *(U.S. Patent: 6,665,641)*.

2. In response to the submitted Bellegarda reference, the examiner has fully considered the IDS filed on 10/23/2003.

3. In response to the amended specification, the examiner has withdrawn the previous objection directed towards minor informalities.

4. In response to the amended claims, the examiner has withdrawn the previous claim objections directed towards minor informalities.

5. In response to the Terminal Disclaimer filed on 9/25/2007, the examiner has withdrawn the previous obviousness-type double patenting rejection.

Response to Arguments

6. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

The applicant argues that amended claims 21, 61, 85, and 93 overcome the previous 35 U.S.C. 101 rejection. Claims 61 and 93 now clearly indicate that a processor is connected to a memory through a bus and executes a program stored in the memory, which enables the method's functionality, so in this case, the rejection of claims 61-80 and 93-96 are withdrawn. Looking to claims 21 and 85, it can be seen that these claims are still not directed to *computer* readable storage mediums having *computer* executable instructions that when executed by *a computer* cause *the computer* to perform a *computer*-implemented method. Data structures not claimed as embodied in computer readable media (i.e., *computer* readable medium storing computer-executable instructions that when *executed by a computer* cause a computer to...) are descriptive material *per se* and are not statutory because they are not capable of causing functional change in *the computer*. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Also, as noted in the previous Office Action, the scope of these recited mediums still includes non-statutory, transitory computer-readable mediums *(Prior OA, Page 5 and Specification, Page 23- "also encompasses a carrier wave")* and for this reason also, claims 21 and 85 are directed to non-statutory subject matter. It is recommended that the specification be amended to cancel the term "carrier wave" or the claim be amended to indicate a –non-volatile computer readable storage medium-- which clearly differentiates statutory mediums from non-statutory mediums *(See specification, page 23)*. As

amended claim 35 was previously a dependent claim of a sequence of claims linked to claim 21, this claim is also subject to the aforementioned 35 U.S.C. 101 rejection.

The applicant's arguments with respect to a concatenation vector and use of such a vector in a distance calculation with a feature vector *(Amendment, Pages 35-36)* have been fully considered but are moot with respect to the new grounds of rejection in view of Coorman et al *(U.S. Patent: 6,665,641)*.

With respect to **Claims 2, 22, 42, and 62**, the applicant argues that there is no suggestion to combine the teachings of Narayan *(U.S. Patent: 5,490,234)* and Pauws et al *(U.S. Patent: 6,208,967) (Amendment, Page 37)*. In response, the examiner notes that the cited portion of Pauws is directed to determining an optimal sequence of phonetic segments that minimizes a distance measure *(Col. 4, Lines 35-61)* and notes the well known computing concept of optimization for the benefit of *(i.e., motivation)* further minimizing the distortion between two speech elements *(Col. 4, Lines 35-61)* in a speech synthesis application *(Col. 2, Lines 13-16)*. Although Pauws teaches performing such an operation using phonemes, the general concept of Pauws is still directed, similar to Narayan, to determining/minimizing the distortion between two adjacent speech segments. Thus, Pauws and Narayan are analogous art and since Pauws notes that iteratively optimizing a boundary between speech segments (i.e., diphones in the case of Narayan) provides a noted benefit *(i.e., motivation is derived from the reference)*, the prior art combination is proper.

The art rejection of the remainder of the dependent claims is traversed on grounds similar to that of the independent claims *(Amendment, Pages 37-40)*. In response to such arguments, see the response directed towards the independent claims.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. **Claims 21-40 and 85-88** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 21, 35, and 85 are drawn to a "program" *per se* as recited in the preamble not stored on a computer-readable medium and not limited to a tangible medium (i.e., "machine-readable medium having instructions to cause a machine" and carrier wave, specification, page 23) and as such is drawn to non-statutory subject matter. See MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media (i.e., *computer* readable medium storing computer-executable instructions that when *executed by a computer* cause a computer to...) are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed *computer* readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer

components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

Dependent **claims 22-34, 36-40, and 86-88** fail to overcome the 35 U.S.C. 101 rejection directed to claims 21 and 85, and thus, are also rejected for being drawn to non-statutory subject matter.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. **Claims 1, 4-10, 21, 24-30, 41, 44-50, 61, 64-70, 81, 85, 89, and 93** are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayan *(U.S. Patent: 5,490,234)* in view of Coorman et al *(U.S. Patent: 6,665,641)*.

With respect to **Claims 1, 21, 41, and 61**, Narayan discloses:

Extracting portions from segment boundary regions of a plurality of speech segments, each segment boundary region based on a corresponding initial unit boundary *(extracting ending and beginning frames respectively from left and right diphone segments located in a*

concatenation boundary region that corresponds to a middle boundary of a phoneme, Col. 11, Lines 4-27; and Col. 1, Lines 48-53);

Creating feature vectors that represent the portions in a vector space *(determining feature vectors for the extracted left and right frames, Col. 11, Lines 28-67)*;

For each of a plurality of potential unit boundaries within each segment boundary region, determining an average discontinuity based on distances between the feature vectors *(optimum blend point determination based on a average vector difference function, Col. 11, Lines 50-67)*; and

For each segment, selecting the potential unit boundary associated with a minimum average discontinuity as a new unit boundary *(selection of the optimum blend point that falls within the left and right frames, Col. 11, Line 50- Col. 12, Line 8).*

Narayan further discloses method/system implementation as a program stored in a computer-readable memory that is accessible by a CPU via a bus *(Col. 4, Lines 43-67; and Col. 16, Lines 32-43; and Fig. 1).*

Although Narayan discloses finding an optimal blending point though an average discontinuity based on distances between two feature vector representations *(replicated concatenated left hand speech vectors and a right hand speech vectors, Col. 11, Lines 28-67)*, Narayan does not specifically suggest creating a concatenation between two different speech segments and then taking an distance between the concatenation vector and the speech units. Coorman, however, discloses a process for computing discontinuity between speech segments as a difference between input feature vectors and diphone boundary vectors *(concatenation vector-*

diphone boundary which is a concatenation of two phonemes) using a vector lookup table *(Col. 18, Lines 16-35).*

Narayan and Coorman are analogous art because they are from a similar field of endeavor in speech synthesis systems utilizing diphones. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Narayan with the discontinuity calculation taught by Coorman in order to provide a means for minimizing spectral mismatch between consecutive speech segments *(Coorman, Col. 18, Lines 16-20).*

With respect to **Claims 4, 24, 44, and 64**, Narayan further discloses:

The average discontinuity is determined over a plurality of concatenations *(average distance calculation performed over a plurality of different concatenation points, Col. 11, Lines 50-67).*

With respect to **Claims 5, 25, 45, and 65**, Narayan further discloses:

The initial unit boundary is in the middle of a phoneme *(concatenating point at a phoneme center, Col. 1, Lines 48-53; and Col. 11, Lines 4-22).*

With respect to **Claims 6, 26, 46, and 66**, Narayan further discloses:

Each potential unit boundary defines two candidate units for each speech segment *(boundary that defines potential left and right diphone units, Col. 11, Lines 4-67).*

With respect to **Claims 7, 27, 47, and 67**, Narayan further discloses:

A concatenation of the plurality of concatenations includes a candidate unit of a first segment linked to a candidate unit of a second segment *(analyzing a plurality of concatenation boundaries by connecting a left diphone to a right diphone, Col. 11, Lines 50-67).*

With respect to **Claims 8, 28, 48, and 68**, Narayan further discloses:

The plurality of concatenations includes all combinations of a first candidate unit of each segment with a second candidate unit of each segment *(searching an entire concatenation range for an optimized boundary point, Col. 11, Lines 50-67).*

With respect to **Claims 9, 29, 49, and 69**, Narayan further discloses:

The plurality of speech segments includes speech segments that end in the middle of a first phoneme, and speech segments that begin in the middle of a first phoneme *(diphones, Col. 1, Lines 48-53; and Col. 11, Lines 4-22).*

With respect to **Claims 10, 30, 50, and 70**, Narayan further discloses:

The plurality of speech segments is stored in a voice table *(voice table, Col. 4, Lines 43-67).*

Claims 81, 85, 89, and 93 contains subject matter similar to Claims 1 and 4, and thus, is rejected for the same reasons.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. **Claims 2-3, 11, 22-23, 31, 42-43, 51, 62-63, and 71** are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayan in view of Coorman et al and further in view of Pauws et al *(U.S. Patent: 6,208,967).*

With respect to **Claims 2, 22, 42, and 62**, Narayan in view of Coorman discloses the speech synthesis method/system utilizing diphone blending point determination as applied to Claim 1. Although Narayan discloses repeatedly performing a search for an optimum boundary point *(Col. 11, Lines 50-67)*, Narayan in view of Coorman does not specifically suggest iterative processing wherein a new boundary is set as a final boundary if it is the same as an initial unit boundary. Pauws, however, discloses a method for determining an optimum boundary within a phoneme that is continued until no further improvement is achieved between iterations *(Col. 4, Lines 35-61)*.

Narayan, Coorman, and Pauws are analogous art because they are from a similar field of endeavor in speech synthesis systems utilizing diphones. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Narayan in view of Coorman with the iterative procedure taught by Pauws in order to further minimize distortion by determining optimum boundaries *(Pauws, Col. 4, Lines 35-61)* and eliminate unnecessary processing when no improvement is achieved.

With respect to **Claims 3, 23, 43, and 63**, Narayan discloses the steps of extracting, creating, determining, and selecting as applied to claim 1, while Pauws discloses the concept of continuing iterative processing in determining an optimal boundary if there is an improvement or difference between boundaries in each iteration, as applied to Claim 2.

With respect to **Claims 11, 31, 51, and 71**, Pauws further discloses:

Recording speech input (recording user input via a microphone, Col. 3, Lines 19-23);

Identifying the speech segments within the speech input *(speech input segmentation, Col. 3, Lines 19-53)*.

13. **Claims 12-13, 32-33, 52-53, and 72-73** are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayan in view of Coorman et al and further in view of George et al *(U.S. Patent: 6,304,846)*.

With respect to **Claims 12, 32, 52, and 72**, Narayan in view of Coorman discloses the speech synthesis method/system utilizing diphone blending point determination as applied to Claim 1. Narayan in view of Coorman does not specifically suggest that the extracted portions include centered pitch periods, however, such centered pitch periods are well known for use in speech synthesis concatenation, as is evidenced by George *(Col. 12, Line 63- Col. 13, Line 27)*.

Narayan, Coorman, and George are analogous art because they are from a similar field of endeavor in speech synthesis systems utilizing diphones. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Narayan in view of Coorman with the centered pitch periods taught by George in order to further ensure coherency between adjacent speech synthesis frames *(George, Col. 12, Lines 63-65)*.

With respect to **Claims 13, 33, 53, and 73**, George further discloses:

The feature vectors incorporate phase information of the portions *(feature vectors, Col. 10, Lines 42-65; comprising phase information, Col. 13, Lines 20-27)*.

14. **Claims 14, 34, 54, and 74** are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayan in view of Coorman et al in view of George et al and further in view of Ahlbom et al *("Modeling Spectral Speech Transitions Using Temporal Decomposition Techniques," 1987)*.

With respect to **Claims 14, 34, 54, and 74**, Narayan in view of Coorman and further in view of George discloses the speech synthesis system utilizing diphone blending point determination and centered pitch periods, as applied to Claim 13. Narayan in view of in view of Coorman and further in view of George do not teach creating feature vectors by constructing a matrix and decomposing the matrix, however Ahlbom discloses a method for obtaining vector values for determining diphone break points using singular value decomposition of a matrix Y *(Pages 13-14)*.

Narayan, Coorman, George, and Ahlbom are analogous art because they are from a similar field of endeavor in speech synthesis systems utilizing diphones. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Narayan in view of Coorman and further in view of George with the singular value decomposition method taught by Ahlbom in order to provide a means for adequately describing the temporal evolution of speech parameters *(Ahlbom, Introduction, Page 13)*.

15. **Claims 82, 86, 90, and 94** are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayan in view of Coorman and further in view of Ahlbom et al *("Modeling Spectral Speech Transitions Using Temporal Decomposition Techniques," 1987)*.

With respect to **Claims 82, 86, 90, and 94**, Narayan in view of Coorman discloses the speech synthesis method/system utilizing diphone blending point determination as applied to Claim 81. Although Narayan discloses repeatedly performing a search for an optimum boundary point *(Col. 11, Lines 50-67)*, Narayan in view of Coorman does not specifically suggest iterative processing wherein a new boundary is set as a final boundary if it is the same as an initial unit

boundary. Ahlbom, however, discloses such an iterative processing concept *(Iterative Refinement and Robustness, Page 14)*.

Narayan, Coorman, and Ahlbom are analogous art because they are from a similar field of endeavor in speech synthesis systems utilizing diphones. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Narayan with the iterative method taught by Ahlbom in order to provide a means for adequately describing the temporal evolution of speech parameters while minimizing a speech synthesis error *(Ahlbom, Introduction, Page 13; and Iterative Refinement, Page 14)*.

With respect to **Claims 83, 87, 91, and 95**, Ahlbom discloses a method for obtaining vector values for determining diphone break points using singular value decomposition of a matrix Y *(Pages 13-14)*.

16. **Claim 84, 88, 92, and 96** are rejected under 35 U.S.C. 103(a) as being unpatentable over Narayan in view of Coorman in view of Ahlbom et al and further in view of George et al *(U.S. Patent: 6,304,846)*.

With respect to **Claim 84, 88, 92, and 96**, Narayan in view of Coorman and further in view of Ahlbom discloses the speech synthesis method/system utilizing diphone blending point determination as applied to Claim 83. Narayan in view of Coorman and further in view of Ahlbom does not specifically suggest that the extracted portions include centered pitch periods, however, such centered pitch periods are well known for use in speech synthesis concatenation, as is evidenced by George *(Col. 12, Line 63- Col. 13, Line 27)*.

Narayan, Coorman, Ahlbom, and George are analogous art because they are from a similar field of endeavor in speech synthesis systems utilizing diphones. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Narayan in view of Coorman and further in view of Ahlbom with the centered pitch periods taught by George in order to further ensure coherency between adjacent speech synthesis frames *(George, Col. 12, Lines 63-65)*.

Allowable Subject Matter

17. **Claims 15-20, 55-60,and 75-80** are allowable over the prior art of record.

18. **Claims 35-40** would be allowable if rewritten to overcome the above 35 U.S.C. 101 issues.

19. The following is an examiner's statement of reasons for allowance:

With respect to **Claims 15, 55, and 75**, the prior art of record fails to explicitly teach or fairly suggest, either individually or in combination, a method/system that determines an optimal boundary for speech synthesis units based on an average discontinuity between created feature vectors around a phoneme segment boundary *(Fig. 2)* that correspond to centered pitch periods and that are created using a singular value decomposition of a matrix W that is defined in claims 15, 35, 55, and 75.

Although Narayan *(U.S. Patent: 5,490,234)* discloses a method for determining an optimal boundary point between speech synthesis diphones *(Col. 11, Line 50- Col. 12, Line 8)*,

George et al *(U.S. Patent: 6,304,846)* discloses centered pitch periods are well known for use in speech synthesis concatenation *(Col. 12, Line 63- Col. 13, Line 2)*, and Ahlbom et al *("Modeling Spectral Speech Transitions Using Temporal Decomposition Techniques," 1987)* discloses a method for obtaining vector values for determining diphone break points using a singular value decomposition of a matrix Y *(Pages 13-14)*, the combination of the prior art of record does not teach feature vector creation for optimal boundary determination using a singular value decomposition of the specific matrix having elements based on centered pitch periods as defined in claims 15, 55, and 75. Although George discloses using centered pitch periods for concatenation and Ahlbom discloses the use of singular value decomposition of a matrix to determine diphone break points, the combination of the teachings of George and Ahlbom does not explicitly teach or suggest how centered pitch periods can be used to construct the singular value decomposition matrix defined in claims 15, 55, and 75 to create two feature vectors used in the distance calculation defined on page 16 of the specification, the result of which is subsequently utilized in selecting new unit boundaries.

The further dependent claims additionally limit allowable parent claims, and thus, are also allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

20. The following is a statement of reasons for the indication of allowable subject matter if the claims were re-written to overcome the above 35 U.S.C. 101 issues:

With respect to **Claim 35**, the prior art of record fails to explicitly teach or fairly suggest, either individually or in combination, a method that determines an optimal boundary for speech synthesis units based on an average discontinuity between created feature vectors around a phoneme segment boundary *(Fig. 2)* that correspond to centered pitch periods and that are created using a singular value decomposition of a matrix W that is defined in claim 35.

Although Narayan *(U.S. Patent: 5,490,234)* discloses a method for determining an optimal boundary point between speech synthesis diphones *(Col. 11, Line 50- Col. 12, Line 8)*, George et al *(U.S. Patent: 6,304,846)* discloses centered pitch periods are well known for use in speech synthesis concatenation *(Col. 12, Line 63- Col. 13, Line 2)*, and Ahlbom et al *("Modeling Spectral Speech Transitions Using Temporal Decomposition Techniques," 1987)* discloses a method for obtaining vector values for determining diphone break points using a singular value decomposition of a matrix Y *(Pages 13-14)*, the combination of the prior art of record does not teach feature vector creation for optimal boundary determination using a singular value decomposition of the specific matrix having elements based on centered pitch periods as defined in claims 35. Although George discloses using centered pitch periods for concatenation and Ahlbom discloses the use of singular value decomposition of a matrix to determine diphone break points, the combination of the teachings of George and Ahlbom does not explicitly teach or suggest how centered pitch periods can be used to construct the singular value decomposition matrix defined in claims 35 to create two feature vectors used in the distance calculation defined

on page 16 of the specification, the result of which is subsequently utilized in selecting new unit boundaries.

The further dependent claims additionally limit objected parent claims containing allowable subject matter, and thus, contain allowable subject matter.

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See PTO-892.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
11/19/2007

PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER